1: Pelzer S-5 (1940-1941) 1945 AL1 Southeast Asia AL1

with sugar or tobacco grown under plantation management. But is the high fertility of the soil due to this crop rotation, or is it rather the result of the heavy application of commerical fertilizer and the thorough cultivation of the soil under Western management?

In no country of Southeastern Asia is there so great a variety or so intensive a use of commercial fertilizers as in Japan.[17] In general, the peasants of Southeastern Asia lack money for commercial fertilizers. In Indochina local phosphates are within reach of some of the Annamese, but the costs of imported fertilizers are prohibitive. In Java, although attempts to make possible the use of fertilizers through the agency of public credit institutions were successful in some special instances, not more than one per cent of the cultivated area received any commercial fertilizer in 1939. On the other hand, estimates indicate that more than 1,000,000 hectares of sawah have a phosphate deficiency and that a moderate application of phosphate would augment the yield by 25 to 50 per cent.[18]

The Agricultural Advisory Service was able to raise the productivity of wet-rice fields in West Java by about 10 per cent. It encouraged the peasants to use fertilizer on seedbeds, to sow rice more thinly on the beds (thus producing stronger seedlings), and to plant the seedlings in rows so that weeding could be done with a special instrument, the *landak* (Fig. 59).[1] This weeder was developed in Japan. During the years immediately preceding 1939, these improvements in West Java resulted in an increase in output of unhusked rice amounting to 300,000 quintals, or 30,000 metric tons, with a value of nearly 1,000,000 guilders. This shows that some improvements in cultivation may increase production without a great capital outlay.[19]

Java may be compared only with southern China and with Japan in the cleanness of its rice fields. The Filipino does not pay much attention to weeding. The Malayan, Thai, Cambodian, Cochinchinese, and Filipino rice farmers have more flooded riceland per capita at their disposal than the people of Java and can thus afford to cultivate their land less intensively.

Irrigation Problems

Peasant irrigation works usually take care of the fields of only one village or of a small group of people who have joined together for the specific purpose of building and maintaining an irrigation system. These works consequently are small and usually inadequate, but nevertheless they de-

[17] "The chief commercial fertilizers used in Japan are pressed herrings, pressed sardines, dried sardines, other fish cakes, bone meal, soybean cake, rapeseed cake, cottonseed cake, other vegetable-oil cakes, ammonium sulphate, calcium cyanamide, calcium phosphate, and potassium phosphate. Calcium phosphate and ammonium sulphate are probably the most representative chemical fertilizers."—Wickizer and Bennett: The Rice Economy, 1941, p. 252, footnote 33.

[18] Departement van Economische Zaken: Voedselproblemen, 1940, p. 28.

[19] *Ibid.*, pp. 27–28.

[1] [See p. 117, category 116. -- Analyst]

18 Firth E-4 (no date) 1950 All Southeast Asia All

cent of the population. Malaya, of course, is exceptional, because of the especially heavy concentration on the production of rubber and tin. According to the 1947 census of Malaya, about 34 per cent of the working population were classed as cultivators and fishermen working on their own account or as unpaid members of families. In all, I think one could reckon that rather more than 100 million people in South East Asia can be regarded as peasantry.

Throughout all this region, peasant technology is simple; skills, though traditionally well adapted to the job in hand, are of limited range. Soils, despite the richness of some of the swamps and river flood-plains, are generally of poor quality. The system of felling and burning the jungle, taking off crops for a few years, and then moving away to cultivate fresh clearings while the old ones revert to jungle, is still common in the mountain areas of Burma, Malaya, and Siam, in part of West Java, in much of Borneo, and in the outer islands of Indonesia. It is known as shifting cultivation or jungle-fallowing. Although regarded as extremely primitive, it is an economic use of land in areas of low population density, where plentiful land allows of long rotation of clearings and consequent restoration of soil fertility. But where population is dense, the system cannot provide the necessary volume of production without endangering the future soil capital, and that is one of the major problems of the area. In the more sedentary forms of agriculture, fertility is conserved with a great deal of care, by manuring, by water control, and so on. Sometimes there is very elaborate and spectacular terracing, as in parts of the Philippines or in Bali, where the native cultivator through his own efforts through generations has known how to make the best of the land with his available techniques. Yet many of these techniques are only of limited efficiency, and custom may be a barrier to improvement. For large masses of the Muslim peasantry of South East Asia, for instance, the pig, an excellent economic converter of resources, is taboo for religious reasons.

Productivity of the South East Asian peasant is apt to be low, whether considered in terms of the margins required above subsistence to give him and his family the range of goods and services they want, or by comparison with Western results. It is hard to make this last comparison significant because of the differing bases, but the following figures will give, perhaps rather superficially, some idea of the comparison. In terms of cwt. of cropping per acre, for instance, the rice crop of part of South East Asia can be compared roughly with the wheat crop of Western Europe. The figures are taken from different years, but they can be regarded as significant averages. Java at 12 cwt. of rice to the acre corresponds with France at 12 cwt. of wheat to the acre; Siam at 14 cwt. to the acre with the United Kingdom at 18 cwt. and Germany at a little less; Japan at 27 cwt. of rice per acre corresponds to Denmark with 27 cwt. of wheat per acre. Yet rice is supposed to be a crop of much higher yield. What is more significant is that productivity per acre in both Malaya and Indo-China is only 10 cwt. on the average, or only between one-third and one-half of the average in Japan.